



Reservoir and River Quality

The health of the Tennessee River and the quality of the reservoirs through which it flows are top priorities for TVA in managing the 54 dams that make up the TVA reservoir system.

Tennessee Valley residents hold TVA responsible for the condition of the Tennessee River system—and TVA has worked since its inception to help protect this vital natural resource. Beginning in the 1930s, TVA taught farmers improved practices to halt soil erosion and developed new ways to protect groundwater from fertilizers and pesticides. We conducted reforestation programs to restore eroded hillsides and worked with state and federal agencies to identify water pollution problems through Valley-wide studies.

Today, protecting and improving reservoir and river quality is part of TVA's corporate commitment to environmental leadership. As a public power agency, we have a responsibility to protect the public interest—which, to us, means setting a standard for other hydropower producers in terms of environmentally sound river management.

Improving Reservoir Releases



In 1991, TVA took action to address the two most widespread and environmentally-limiting conditions in the Tennessee River system: low levels of dissolved oxygen and intermittent riverbed dry-out in areas below dams. We initiated a five-year, \$44-million program to improve dissolved oxygen levels below 16 TVA dams and adopted new year-round minimum flow requirements for tributary and mainstream dams.

Because conditions are different at each dam, we've developed a wide range of state-of-the-art technologies to meet our aeration and flow targets:

- Oxygen injection, surface water pumps, aerating weirs, compressed air, and turbine venting systems are used to add oxygen.
- Re-regulation weirs, turbine pulsing, and small hydropower units (which operate when the main units are shut off) are used to sustain minimum flows.

These changes have improved conditions for aquatic life in over 300 miles of river. Studies show a significant improvement in the number and diversity of aquatic life in many tailwater areas, as well as a dramatic increase in tailwater fishing and local economic benefits.

Monitoring Reservoir and River Quality



TVA has one of the most comprehensive monitoring programs in the nation, aimed at providing information on the ecological health of 31 reservoirs, as well as major rivers and streams in the Tennessee Valley. To determine reservoir health, we monitor five ecological indicators at up to four locations in a reservoir. These include chlorophyll, dissolved oxygen, sediment quality, bottom life, and fish assemblage. The results are summarized in a single ecological health score for each reservoir.



In addition, TVA:

- collects and maintains information on baseline water conditions in all of the Valley's 603 hydrologic units;
- checks fecal coliform bacteria levels in water samples from recreation areas;
- cooperates with state agencies to check fish for toxic contamination; and
- evaluates fish health and population levels through catch depletion surveys and reservoir fish community assessments.

This information is shared with state agencies and provided to the public through *TVA River Neighbors*, a newsletter for lake users.

Enhancing Conditions for Aquatic Life

TVA has formed partnerships with federal and state fisheries managers, conservation agencies, fishing clubs, and other groups to improve fish habitat in TVA reservoirs. Examples of cooperative projects include planting trees and other types of vegetation along shorelines and installing or refurbishing fish attractors and bass spawning benches. TVA also plays a key role in improving coordination among Valley states related to fish habitat and water quality improvement.

River Scheduling and Water Quality

Reservoir and river quality is a major consideration in the operation of the TVA reservoir system. TVA stabilizes reservoir levels during spring spawning periods to benefit fish populations and times the fall drawdown to minimize dissolved oxygen problems and to allow the gradual release of water to avoid eroding shorelines downstream. TVA also factors water temperatures into release decisions and adjusts flows to support clean-ups and other improvement projects.

Environmental Compliance

TVA meets—and often surpasses—its environmental compliance responsibilities. We integrate environmental considerations into business planning, establish environmental goals, and measure and publicly report our environmental performance.